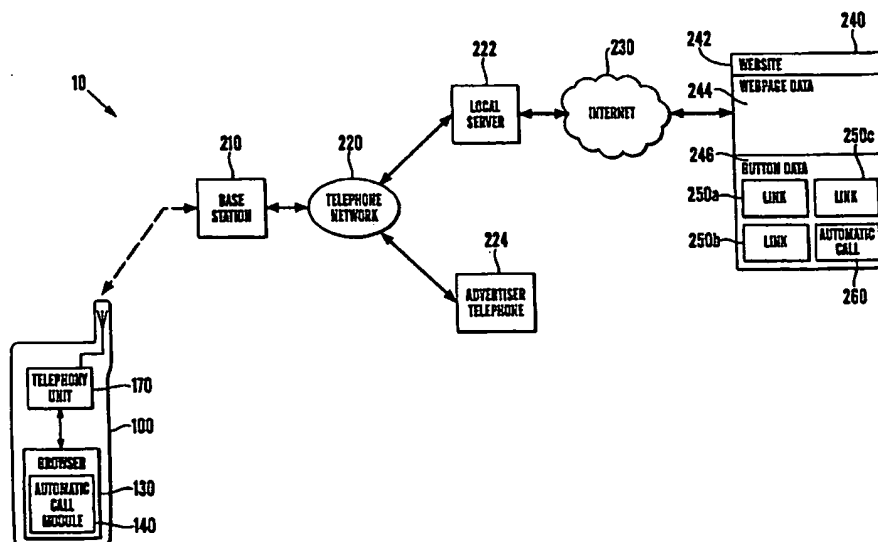




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<p>(21) International Application Number: <b>PCT/GB00/00338</b></p> <p>(22) International Filing Date: <b>4 February 2000 (04.02.00)</b></p> <p>(30) Priority Data:            9902435.8      4 February 1999 (04.02.99)      GB            60/124,021      17 February 1999 (17.02.99)      US</p> <p>(71) Applicant (for all designated States except US): <b>ROUND-POINT, INC. [US/US]; 1121 Mission Street, San Francisco, CA 94103 (US).</b></p> <p>(72) Inventors; and            (75) Inventors/Applicants (for US only): <b>SHONFELD, Trevor, Douglas [GB/US]; Roundpoint, Inc., 1121 Mission Street, San Francisco, CA 94103 (US). BENDING, David, John [GB/GB]; Roundpoint Ltd., Science Park, Milton Road, Cambridge CB4 0DW (GB).</b></p> <p>(74) Agents: <b>BERESFORD, Keith, Denis, Lewis et al.; Beresford &amp; Co., 2-5 Warwick Court, High Holborn, London WC1R 5DJ (GB).</b></p>	<p>(81) Designated States: <b>AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</b></p> <p><b>Published</b>  <i>With international search report.</i>  <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	

(54) Title: TELEPHONIC CONNECTION SUPPORT FOR INTERNET BROWSER



## (57) Abstract

A browser (130, 330) for use on a mobile telephone (100) is configured to include a facility (140, 566) operable, on user selection of a predetermined button (186) on a displayed web page, to cause establishment of a telephone connection between the mobile telephone and a third party appliance (224). A browser for use on a personal computer (300) is also provided with the same facility. In that case, the facility is operable to establish a telephone connection, which can be used by a user operating a telephone appliance (326) adjacent the personal computer and sharing the same telephone line. The facility (140, 566) can be embedded in a browser, included as a plug-in to an existing browser, or downloaded on-line as an applet when required.

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## TELEPHONIC CONNECTION SUPPORT FOR INTERNET BROWSER

The present invention relates to an electronic browser,  
particularly, but not exclusively, for use alongside or  
5 integrated with a telephone.

Access to information stored at locations accessible via  
the Internet is achieved by means of a browser. A  
browser is a software product which resides on computer  
10 hardware, and is capable of retrieving data from a remote  
location. This data commonly represents textual or  
graphical information, and has mark-up instructions  
embedded therein, which identify the mode of display of  
the information. The browser interprets those mark-up  
15 instructions to cause the information to be displayed on  
the computer hardware in the desired manner.

Usually, a user accesses the Internet via an Internet  
service provider (ISP). An ISP provides a local server  
20 which is itself physically connected into the Internet,  
and is accessed by the user via a telephonic connection.  
ISP's often offer a service whereby the cost of the  
telephonic connection is charged to the user as though it  
is a local call. The advantage of this system is that  
25 telephone charges to the user can be maintained at a low

level.

It has been found that a voice channel can be established over the Internet, thus a telephone call can be conducted between two users a long distance apart, but at the cost of local calls to respective ISP's. This is achieved by a technique known as IP-telephony, where IP stands for Internet Protocol. However, the establishment of this voice channel is dependent upon both initiator and receiver of the telephone call having computer equipment configured by suitable hardware and software, and upon respective ISP's supporting the service. Further, the bandwidth available across an Internet connection can be lower than that available on a conventional telephone line, leading to a lower sound quality over the Internet voice channel than available by conventional telephony.

Commercial organisations now commonly display advertising material on web sites to be downloaded by potential customers. It is possible to conduct an entire commercial transaction via the Internet, by the sending of encrypted messages carrying, for example, ordering and payment information. However, many customers are reluctant to divulge financial information such as credit card details over the Internet, due to a perceived lack

of security. In contrast, many of these customers are willing to conduct the same commercial transactions by telephone.

5 An aspect of the invention provides an electronically retrievable website comprising a user selectable facility operable to establish a telephonic connection between the user and a third party. The third party may be a commercial entity, such as the proprietor of the website.

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Also, many users of the Internet and other information networks only have access to one telephone line. This is a very common arrangement for domestic users. This means that the user can only make a telephone call when disconnected from the Internet. Accordingly, if a commercial organisation supplies advertising material on the Internet, with contact details including a telephone number, the user must disconnect from the Internet before responding to the advertisement by telephone. Users may find this inconvenient.

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Further, certain mobile telephones are capable of establishing connections with Internet service providers, for retrieval of information from the Internet. It is usual for a mobile telephone only to establish a

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connection with one party at any particular time, and so a user would need to disconnect from the Internet service provider before calling a third party for a speech based telephone connection.

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An aspect of the invention provides a module receivable by a browser, to cause the browser to present to a user a user selectable facility for automatically establishing a telephonic connection between the user and a third party. The facility may be operable to manage a telephonic connection between the user and an information network.

In accordance with one aspect of the invention, a computer apparatus includes telephone control means, responsive to information received along a telephonic connection from a remote information source, on receipt of said information said telephone control means being responsive to a user selection action to cause disconnection of said computer apparatus from said remote information source, and to cause establishment of a telephone connection with a third party.

Further, the apparatus may include means for detecting hang-up by said third party, said detecting means being

responsive to hang-up detection to re-establish said telephonic connection with said remote information source.

5       The computer apparatus may comprise a mobile telephone, capable of establishing a data connection with an information network.

10       A second aspect of the invention provides a method of controlling telephonic connections, the method comprising the steps of establishing a data telephonic connection with a remote information provider, providing a user selectable facility for establishment of a voice telephony connection and, in response to user selection  
15       of said facility, cancelling said data connection with said remote information provider and establishing said voice telephony connection.

20       A third aspect of the invention provides a browser for use in computer apparatus, the browser being capable of receiving data defining a desired graphical representation of a web page, and generating display data of that graphical representation, the browser comprising means for monitoring user selection of items in said  
25       graphical representation, responsive to selection of an

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item to generate a message for establishment of a telephonic connection with a remote telephony apparatus in accordance with connection information associated with said item received in said data.

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A fourth aspect of the invention provides a program for a computer, said program being capable of retrieval on to a computer from a remote location, said program being operable to cause establishment of a telephonic connection with a third party.

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In said fourth aspect, said program is capable of being incorporated into web page data for retrieval from a website.

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A fifth aspect of the invention provides a mobile telephone apparatus capable of retrieving information from a remote information provider, and communicating said information to a user, the apparatus comprising means, responsive to information retrieved from said remote information provider, for presenting to said user a user selectable facility for establishment of a voice telephone connection with a third party, and means responsive to user selection of said facility, for suspending connection with said remote information

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provider and for establishing said voice telephonic connection.

In said fifth aspect, said means for suspending may  
5 comprise means for cancelling said connection with said  
remote information provider. Means may be provided for  
monitoring said voice telephonic connection, said  
monitoring means being responsive to cancellation of said  
voice telephonic connection to cause reestablishment of  
10 said connection with said remote information provider.

Further features, aspects and advantages of the invention  
will become apparent from the following description of  
specific embodiments of the invention, provided by way of  
15 example only, with reference to the accompanying  
drawings, in which:

Figure 1 is a schematic diagram of a communications  
system in accordance with a first specific embodiment of  
20 the invention;

Figure 2 is a schematic diagram of a data file defining  
a website in the system of Figure 1;

25 Figure 3 is a view of a mobile telephone unit of the

system illustrated in Figure 1, in receipt of the data file of Figure 2;

Figure 4 is a schematic diagram of a browser of the mobile telephone unit of Figure 3;

Figure 5 is a flow diagram illustrating a process performed by a user input monitor of the browser illustrated in Figure 4;

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Figure 6 is a flow diagram illustrating a process performed by an automatic call module of the browser illustrated in Figure 4, on initiation by the user input monitor illustrated in Figure 5;

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Figure 7 is a schematic diagram of a communications system of a second embodiment of the invention;

Figure 8 is a flow diagram illustrating a process performed by a user input monitor of a browser illustrated in Figure 7;

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Figure 9 is a schematic diagram of a communications system of a third embodiment of the invention; and

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Figure 10 is a schematic diagram of a browser of a personal computer apparatus of the system illustrated in Figure 9.

5        Figure 1 illustrates a communications system 10 comprising a mobile telephone unit 100, capable of wireless communication with a base station 210. The base station 210 is connected with a telephone network 220, which comprises a series of exchanges and trunk  
10        connections to provide a telephone service to various subscribers.

Via the base station 210 and the telephone network 220, the mobile telephone unit 100 is capable of establishing  
15        a telephone connection with a local server 222, for access to the Internet 230, and via the Internet to a website 240 stored at a remote location. Alternatively, the mobile telephone unit 100 can establish a telephone connection with an advertiser telephone 224.

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The mobile telephone unit 100 includes a telephony unit 170, for the establishment of wireless communication with the base station 210. Further, the mobile telephone unit 100 includes a browser 130 which facilitates the  
25        retrieval and display of information from websites

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accessible via the Internet.

The illustrated website 240 comprises a header 242, web  
page data 244, which defines the content to be  
5 illustrated by the browser, and button data 246 which  
defines regions of the displayed content of the website  
240 which are user selectable to cause the browser 130 to  
perform an action. The button data 246 includes data  
250a, b, c, defining three link buttons which, when  
10 displayed, are user selectable to cause the browser 130  
to retrieve data defining further websites. The button  
data 246 further includes data 260 defining an automatic  
call button which interacts with an automatic call module  
140 of the browser 100 such that, on user selection of  
15 the automatic call button on the displayed website, the  
browser 130 instructs the telephony unit 170 to  
disconnect the mobile telephone unit 100 from the local  
server 222, and to establish a telephone connection with  
the advertiser telephone 224. Following completion of a  
20 voice based telephone call with the advertiser telephone  
224, the browser 130 instructs the telephony unit 170 to  
reestablish the connection with the local server 222 and,  
from the local server 222 to websites accessible via the  
Internet 230.

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The data defining the website 240 is illustrated in further detail in Figure 2. The web page data 244 defines the physical appearance of the web page when displayed on a receiving appliance capable of receiving mark up language instructions. In the present case, this  
5 appliance is the mobile telephone unit 100, including the browser 130.

The web page data 244 defines the graphical display which  
10 will be produced by the browser 130 in response to receiving the data defining the website 240. The button data 246 complements the web page data 244, providing the browser 130 with information as to which regions of the web page as displayed are sensitive to user selection.

15 In each of the pieces of data 250a, b, c defining the link buttons, a coordinates field 252a, b, c defines the boundaries of the link button in the web page, such that user selection within that boundary is interpreted by the browser 130 as selection of the link button in position.  
20 A redisplay data field 254a, b, c defines a graphical representation which is to be applied to the region of the button in question on user selection of that button. Thus, when the browser 130 detects selection of a button,  
25 it checks the redisplay data field 254a, b, c for that

button, and redisplay the button to indicate to the user that the button has been selected. Further, a link command field 256a, b, c provides data defining a unique resource locator (URL) identifying a website to which the browser 130 is to be redirected when the link button in question is selected by the user.

Additionally, the data 260 defining the automatic call button includes a coordinates field 242 and a redisplay data field 264 as already described in relation to the link button data 250a, b, c. Further, an automatic call command field 266 contains data defining a telephone number. In the illustrated embodiment, the telephone number is that of the advertiser telephone 224. When the browser 130 detects selection of the automatic call button, the automatic call module 140 of the browser 130 instructs the telephony unit 170 to disconnect from the local server 222 and to connect to the advertiser telephone 224 defined by the telephone number held in the automatic call command field 82.

Figure 3 illustrates in further detail the mobile telephone unit 100, in a condition whereby the browser 130 thereof is displaying an output corresponding to the data 240 defining the website.

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The mobile telephone unit 100 includes an ON/OFF switch 102, a display screen 110 on which the browser 130, and other aspects of the mobile telephone unit 100 can display data for viewing by the user, an antenna 112 for  
5 establishing wireless communication with the base station 30, a key pad 114, including alphanumeric keys and navigation keys, and a microphone 116 and a speaker 118, for audio input and output.

10 The navigation keys of the key pad 114 can be used to cause navigation, of a cursor on the display, and a designated selection key can be used to indicate user selection at a particular cursor position. Direct input of data can be achieved using the alphanumeric keys.

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The browser 130 displays on the display of the mobile telephone unit 100 a window 180 in which the URL for the present website is indicated. In a field 182 beneath that window 180, the display output corresponding to the  
20 web page data 244 is illustrated. In the present case, five lines of text are defined in the web page data 244, and four buttons, namely three link buttons 184a, 184b, 184c and an automatic call button 186 are defined over the last four lines of the text. These buttons 184a, b,  
25 c, 186 are defined in the buttons data 246, and

specifically in the link button data 250a, b, c and the automatic call button data 260. The extent of those buttons 184a, b, c, 186 is indicated by broken lines in Figure 3.

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As illustrated in Figure 4, the data defining the website 240 is retrieved by a website data retrieval unit 132 of the browser 130. This unit 132 stores retrieved website data in a website data field 152 in memory 150, and passes the same data to a data conversion unit 134. The data conversion unit 134 interprets the web page data 244, including any embedded mark-up instructions, to produce data defining a graphical display, which it places in a display data field 154 in memory 150 for use by the display 110 in generating a graphical image. Further, the data conversion unit 134 identifies, from the button data 246, particular regions 184a, b, c, 186 of the graphical image which are to be interpreted as sensitive to user selection. The coordinates of these regions are placed in a button data field 156 in memory. The data conversion unit 134 further defines the initial position of a cursor to be used by a user in implementing user selection of the particular region of the displayed website. This cursor position is stored in a cursor position field 158 in memory.

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A user input monitor 136 monitors any user inputs entered in a user input field 160 in memory 150, alongside the present cursor position stored in the cursor position field 158 and the boundaries of buttons stored in the button data field 156. The user input monitor 136 sends messages to the data conversion unit 134 relating to the revision of the cursor position, with corresponding redetermination of the display data and the cursor position, and any selection of buttons, with corresponding redisplay of buttons.

The user input monitor 136 is operable to monitor the selection of a button, in accordance with the procedure illustrated in Figure 5. The user input monitor 136 monitors user inputs presented in the user input field, and checks periodically, in step S1-2, if a cursor navigation key has been presented. If it has, then, in step S1-4, the position of the cursor is updated. This is achieved by the user input monitor 136 sending a message to the data conversion unit 134, to revise the cursor position 158, stored in the cursor position field, and to revise the display data 154 accordingly.

If a cursor navigation key has not been pressed, then, in step S1-6, a check is made as to whether a confirmation

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or "OK" key of the keypad 114 of the mobile telephone unit 100 has been pressed. If not, then the user input monitor 136 returns to step S1-2. If the OK key has been pressed, then a check is made in step S1-8, of the cursor position field as to whether the cursor is over a button 184a, b, c, 186 as defined by data held in the button data field 156. If the cursor is over a button 184a, b, c, 186, then in step S1-10, the user input monitor 136 retrieves from the button data field 156 the redisplay data 254a, b, c, 264 relating to that button 184a, b, c, 186, and sends that redisplay data to the data conversion unit 134 so that the corresponding graphical data, to be held in the display data field for use by the display, can be recalculated. Thereafter, the user input monitor refers to the command field 256a, b, c, 266 of the button data 250a, b, c, 260, in step S1-12, and activates the action relating to that command.

The browser illustrated in Figure 24 provides two different actions which can be effected by buttons 184a, b, c, 186. Firstly, a web page retrieval request unit 138 is activated by a link command. When the user input monitor identifies selection of a button 184a, b, c which corresponds with a link command, the URL data held in the link command field 256a, b, c of the button data 250a, b,

c corresponding to that button 184a, b, c is passed to the web page retrieval request unit 138. The web page retrieval request unit 138 instructs the website data retrieval unit 132 to retrieve data defining the website identified by the new URL.

Also provided in the browser is the automatic call module 140 previously described. The automatic call module 140 is operable when the user input monitor identifies a button 186 as having been selected which corresponds with button data 260 containing in its command field 266 an automatic call command with a corresponding telephone number. The automatic call module 140 passes a message to the telephony unit 170 to disconnect from the local server 222 and to establish a connection with the telephone 224 identified by the telephone number in the automatic call command data field of the corresponding button data 76.

Once the user input monitor 136 has passed the respective action to the appropriate unit, the user input monitor 136 returns to monitor the user input field for any user inputs.

On receipt of a message from the user input monitor 136,

the automatic call module 140 initiates the procedure illustrated in Figure 6. In step S2-2 of that procedure, the automatic call module causes the storage of the currently displayed web page in memory. Although the browser 130 stores, as a matter of course, the current page in memory, the location of the stored page could become corrupted in operation of the automatic call module 140, and so it is useful to ensure that the automatic call module 140 makes a copy in memory which it can locate later. This is particularly useful in the case of a mobile telephone unit 100 where memory resources may be significantly lower than would be the case with a computer, which might have mass storage resources such as a hard disk.

After the current page has been stored, then, in step S2-4, the automatic call module 140 sends a message to the telephony unit 170 that the present connection to the local server 222 should be disconnected. In step S2-6, the automatic call module 140 makes a check as to whether the disconnection request has been successful. If no confirmation has been received from the telephony unit 170, then, in step S2-8, the disconnection request is repeated. The check is continued until disconnection is successful, at which point, in step S2-10, a message is

sent to the telephony unit 170 that a telephone connection should be established with the advertiser telephone 224. This advertiser telephone 224 is identified by the telephone number held in the automatic  
5 call command data field 82, as passed to the automatic call module 26 by the user input monitor.

Then, in step S2-12, a check is made as to whether the call has been established. When confirmation is received  
10 from the telephony unit 170 that the call is established, in step S2-14, the automatic call module 140 refers back to the automatic call command data 266, to establish if any further tones need to be sent to the called party. Further DTMF tones, pauses, or the like could be used to  
15 communicate with a call navigation system at the advertiser telephone 224. A call navigation system can be used by customers to navigate to a member of staff who is trained to deal with a particular product or service. A navigation system can be controlled by DTMF Dual Tone  
20 Multi Frequency tones which are detectable by the call navigation system and which cause different menus to be presented in pre-recorded messages to the caller.

Navigation through a call navigation system is automated  
25 by the automatic call module 140, which causes DTMF tones

to be sent down the telephone connection established with the advertiser telephone 224, to control the call navigation system thereby ensuring that the telephone connection reaches a suitable party.

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In the present case, DTMF tones are to be sent, and a message is sent to the telephony unit 170 in step S1-16 to that effect. If DTMF tones are not to be sent to the called party, then the procedure would continue without execution of step S2-16.

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Thereafter, the automatic call module 140 checks, in step S2-18, that the called party has responded. If not, then in step S2-20, the automatic call module 140 waits until a response is made. If so, then, in step S2-22, the automatic call module 140 instructs the telephony unit 170 to maintain a voice channel with the advertiser telephone 224.

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Thereafter, in step S2-24, the automatic call module 140 monitors for a message from the telephony unit 170 indicating that the user of the mobile telephone unit 100 has hung up the voice call connection. If not, then step S2-22 continues. However, if a hang-up message is received from the telephony unit 170, then confirmation

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of hang-up is sent to the automatic call module 140 by the telephony unit.

Further, in step S2-12, a check was made as to whether the call had been established. If the called party is busy on another call, the requested call would not be established. A busy message would be sent from the called party back to the telephony unit 170, and a message would be sent to the automatic call module 140.

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In step S2-26, the automatic call module causes the display of a display message indicating that the line is busy. Then, or in response to the hang-up message received in step S2-24, step S2-28 causes the voice channel to be cancelled. In step S1-30 the automatic call module 140 sends a reconnect message to the telephony unit 170 to cause reconnection of the mobile telephone unit 100 with the local server 222 providing access to the Internet 230.

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In step S2-32, on confirmation that the connection has been made, a confirmation message is sent back by the telephony unit 170 to the automatic call module 140. On failure of reestablishment of the connection with the local server 222, in step S2-34 the automatic call module

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140 causes the telephony unit 170 to reattempt connection. When connection is eventually reestablished, in step S2-36 the automatic call module 140 retrieves the stored website data from memory, and the corresponding website is displayed. Thereafter, the procedure ends.

A second embodiment is illustrated in Figure 7. In this embodiment, a personal computer (PC) 300 is connected, via a modem 324 to the telephone network 220 as previously described. Further, by means of a line splitter 328, a telephone 326 is also connected, via the same line, to the telephone network 220.

The PC 300 has a visual display unit (VDU) 302 connected thereto, along with a keyboard 304 and a mouse 306. Further, an optical disk drive 310 is provided, which is suitable for receiving an optical disk 312. A magnetic disk drive 314 is suitable for receiving a magnetic disk 316. A mass storage device, namely a hard disk drive 318, is also provided.

To provide audio input and output, a speaker 320 and a microphone 322 are also connected to the PC 300.

The PC 300 has installed thereon a browser 130,



incorporating an automatic call module 140, as described previously in connection with the first embodiment. It will be appreciated that minor differences between the browser installed on the PC and that installed on the mobile telephone 100 may exist, to take account of differences in operating system architecture. However, these differences do not affect the operation of the browser 130 in each case.

As previously described, a website 240 is accessible via the Internet 230, access to which is provided by a local server 222 connected to the telephone network 220. In that way, the PC 300 can be used by a user to access information stored at the website 240.

Figure 8 describes the operation of the user input monitor 136, as illustrated in Figure 4, when installed on the PC 300. Certain steps are changed to account for the fact that the input device in this case is likely to be the mouse 306. In step S3-2, an enquiry is made as to whether the mouse has moved. If it has, then in step S3-4, the cursor position is updated as previously described in connection with step S1-4 of Figure 5.

In the case that the mouse has not moved, then an enquiry

is made in step S3-6 as to whether a mouse button of the mouse has been clicked. If not, then the procedure returns to step S3-2. If a mouse button has been clicked, then in step S3-8, a check is made as to whether  
5 the cursor corresponding to the mouse, as stored in the cursor position field 158, is over a web page button, the boundaries of which are stored in the button data field 156. If not, the procedure returns to step S3-2. However, if the user input monitor 136 identifies that  
10 the mouse cursor is over a web page button, then in step S3-10, the user input monitor 136 sends a message, as before, to the data conversion unit 134. This causes redisplay of the button on screen.

15 Thereafter, a message is sent by the user input monitor to the web page retrieval request unit 138 in the case of a link command residing in the command field of the button data in question, and the automatic call module 140 in the case that an automatic call command resides in  
20 the command field of the data defining the button in question. Then, the procedure ends.

Figure 9 illustrates a third embodiment, in which the PC previously described has installed thereon a browser 330  
25 in place of the previously described browser 130. The

browser 330 is of relatively standard configuration, including a Java module 340 which is capable of interpreting Java applets. An applet is a small program, intended to be hardware independent, which is  
5 conveniently small enough to be downloaded as part of a website. An applet will usually operate to call services of the platform on which it resides, such as the operating system, for example to open a new window of an application on a windows based operating system.

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In the arrangement shown in Figure 9, the browser 330 is illustrated with access to a website 540, similar in construction to the previously described website 240. In this case, the website 540 has a header 542, web page  
15 data 544 as previously described and button data 546. The button data 546 has data 550a, b, c relating to three link buttons, and data 560 relating to an automatic call button. In that way, the resultant display on screen will be the same as that displayed in Figure 3. The data  
20 550a, b, c relating to the link buttons is of the same configuration as the data 250a, b, c relating to the buttons in the website 240 illustrated in Figures 1 and 2. The data 560 relating to the automatic call button is of similar construction to the data 260 relating to the  
25 automatic call button in Figures 1 and 2. However, in

the automatic call command field 566, equivalent to the automatic call command field 266 in Figure 2, a Java applet is stored. This Java applet is downloaded when the browser 330 retrieves the website data 540.

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Figure 10 illustrates the browser 330 in further detail. The browser 330 comprises a website data retrieval unit 332, a data conversion unit 334, a user input monitor 336 and a web page retrieval request unit 338. These correspond with the same units 132, 134, 136, 138 in the browser 130 illustrated in Figure 4. Further, a memory unit 350 is provided. This memory unit 350 has a website data field 352, a display data field 354, a button data field 356, a cursor position field 358 and a user input field 360, as previously described in relation to the memory unit 150 in the browser illustrated in Figure 4.

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Further, the browser 330 is not provided with an automatic call module. Instead, the browser has a Java module 370, in cooperation with the user input monitor 336, which has a corresponding applets field 362 in memory 350.

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When the website data 540 is retrieved by the website data retrieval unit 332, any Java applets, including the

Java applet 566 illustrated in Figure 9, are stored in the applets field 362. The button data field 356 stores the data 560 relating to the automatic call button, including a pointer to the relevant Java applet 566, stored in the applets field 362. Then, when a user input is identified by the user input monitor 336, as being a mouse button click over the automatic call button, the user input monitor instructs the Java module 370 to execute the Java applet 566.

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The Java applet 566 operates in accordance with the procedure illustrated in Figure 6, and thus has the functionality of the automatic call module 140. This arrangement is useful since it does not require pre-installation of any software in order to obtain the effect that telephone calls can be established by simple user input on information displayed on the browser, having been retrieved from a website 540.

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Further aspects and advantages of the invention will be appreciated from the foregoing description. Additionally, in the case that two telephone lines are available, the automatic call module could be configured to instruct the telephony unit or the modem, as the case may be, to place the connection with the local server 222

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on hold, while a voice based telephone call is connected with the advertiser telephone 224. In that way, user of a mobile telephone 100 could be provided with a facility to switch back and forth between the connection to the local server 222 and the advertiser telephone 224.

The automatic call module 140 in the browser 130 can be provided as a separate program. Browsers typically consist of a number of related sub-programs, which provide facilities to a root program. In this case, a further sub-program, comprising the functionality of the automatic call module 140, can be installed, after supply and installation of a browser, to cause the browser to be configured as the browser 130 illustrated in Figure 4.

The same arrangement is typically provided to configure a browser to have Java handling capabilities, such as the browser 530 illustrated in Figures 9 and 10. The sub-program which causes the browser to become configured as that illustrated in Figure 4, including an automatic call module 140, can be provided as a plug-in program, stored on a storage medium such as an optical disk or a magnetic disk, or downloaded from a website accessible via the Internet. Typically, plug-in programs are either automatically installed on receipt, or provide an installation program which requires user prompts.

In an alternative arrangement, the browser could be configured, either by means of an integral automatic call module or by means of a Java applet, to provide a facility to a user to highlight a telephone number supplied in text defined by data of a web page, and to select the facility of the browser, either by graphically displayed button or by pull down menu, for the browser to cause that telephone number to be dialled.

Further, in one embodiment, the browser could be configured such that, in response to user selection of the automatic call button, the browser retrieves further web page information prior to disconnecting from the local server. This further information can be stored in memory alongside the encached current web page. This encached web page information can be browsed by the user even after the connection to the local server has been disconnected, thus allowing the user to refer to further information during the telephone call to the advertiser.

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Finally, the user input functions could be provided by means of voice recognition software on the apparatus on which the browser is installed. Simple voice commands, typically one or two words in length, could then be used to cause the browser to effect a telephone connection

with another telephone unit.

For example, commands could be provided for configuring the browser to send navigation commands in a form other than DTMF tones, or to wait for a particular  
5        acknowledgement tone from the called party before proceeding with a next step in the call procedure.

Additionally, the display of the mobile telephone unit  
10       could be touch sensitive, allowing a user to use a finger or a pointer to make user selection of icons or regions on screen to perform an action.

The mobile telephone unit could be provided with a  
15       browser with a Java module, as described in the third embodiment in relation to a personal computer. This Java module could then be capable of receiving a Java apparatus as described in relation to the third embodiment. The first embodiment has been so arranged in  
20       order to take advantage of the fact that the software provided on a mobile telephone unit is likely to be of an embedded form, i.e. it is part of the original equipment and is not installed by a user. In that way, the facility for interpreting an automatic call command can  
25       be incorporated originally into the browser.



Whereas Figure 1 shows a system comprising a single mobile telephone unit and a single website, it will be appreciated that this is a simplification, for the purpose of clarity, of a system which can comprise many mobile telephone units, accessed by one or more base stations, which can be connected to several interconnected telephone networks with many personal computers. Each mobile telephone unit and each personal computer will, via corresponding local servers, be able to access many websites, of which more than one can comprise a facility as described above for causing establishment of a telephone call to a third party, which can be the illustrated advertiser telephone but could also be one of many different third parties connected to the telephone networks.

CLAIM:

1. A system comprising web site host computer apparatus storing information defining a web page, and user  
5 computer apparatus in communication with said web site host computer apparatus by means of a communications channel, said user computer apparatus comprising browsing means for retrieving said web page, information presenting means for presenting said web page to a user,  
10 and selecting means for receiving signals defining user selection of an item from said web page presented to said user, wherein one of said web site host and user computer apparatus stores a computer program operable on said user computer apparatus to cause said user computer apparatus  
15 to establish, on user selection of a predetermined item from said web page, a telephonic connection with a third party telecommunications apparatus.
2. A system in accordance with claim 1 wherein said  
20 computer program is operable to cause said user computer apparatus to disconnect, prior to establishing said telephonic connection, said communications channel with said web site host computer apparatus.
- 25 3. A system in accordance with claim 2 wherein said

computer program is operable to cause said user computer apparatus to monitor said telephonic connection for user cancellation thereof.

5        4.    A system in accordance with claim 3 wherein said computer program is operable to cause said user computer apparatus to reconnect said communications channel on user cancellation of said telephonic connection.

10       5.    A system in accordance with any one of claims 2, 3 or 4 wherein said computer program is operable to cause said user computer apparatus, on user selection of said predetermined item, to retrieve further web page information, and to store said information for selective  
15       presentation to said user, prior to causing, in use, said user computer to disconnect said communications channel.

20       6.    A system in accordance with any preceding claim wherein said predetermined item is a region of said web page.

7.    A system in accordance with any preceding claim wherein said item is an icon of said web page.

25       8.    A system in accordance with any preceding claim

wherein said computer program is stored on said web site host computer apparatus.

5        9.    A system in accordance with claim 8 wherein said computer program is stored on said web site host computer apparatus such that said computer program is retrieved, in use, with said web page.

10       10. A system in accordance with claim 9 wherein said computer program is operable to be retrieved by said browsing means separately from said web page.

15       11. A system in accordance with claim 10 wherein said computer program is operable to be retrieved by said browser means on user selection of said predetermined item.

20       12. A system in accordance with any one of claims 1 to 7 wherein said computer program is stored on said user computer apparatus.

13. A system in accordance with claim 12 wherein said browsing means comprises said computer program.

25       14. A system in accordance with claim 12 or claim 13

wherein said computer program is operable to receive a telephone number comprised in said website defining information.

5        15. A web site host computer apparatus for use in the system of any of claims 8 to 11, comprising storage means and processing means for storing information defining a web page and for making the web page accessible to remotely located user computer apparatus when connected  
10        to the web site host computer apparatus, said storage means further storing a computer program operable to configure a user computer apparatus to take steps to establish, on user selection of a predetermined item from said web page, a telephonic connection with a third party  
15        telecommunications apparatus.

16. A computer apparatus for use in the system of any of claims 12 to 14, comprising browsing means for retrieving web page defining information, including information  
20        defining a third party telecommunications apparatus, information presenting means for presenting said web page to a user, selecting means for receiving signals defining user selection of an item from said web page, and means operable, in use when the apparatus is connected to a  
25        telephone line, and on user selection of a predetermined

item from said web page, to establish a telephonic connection in accordance with said information defining a third party telecommunications apparatus, with said third party telecommunications apparatus.

5

17. A computer apparatus in accordance with claim 16 in combination with telecommunications apparatus for use by said user of said computer apparatus, in conducting a conversation with a user of said third party telecommunications apparatus.

10

18. The apparatus in accordance with claim 17 wherein said telecommunications apparatus and computer apparatus share a common external telephony connection.

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19. A mobile telephony communications apparatus comprising computer apparatus in accordance with claim 16.

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20. A web site host computer apparatus for use with user computer apparatus in accordance with any of claims 16 to 18 comprising storage means and processing means for storing information defining a web page and for making the web page accessible to remotely located user computer apparatus when connected to the web site host computer

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apparatus, said web page defining information including information identifying a third party telecommunications apparatus, said information defining a third party telecommunications apparatus being operable to cause computer apparatus in accordance with any of claims 16 to 18 to establish a telephonic connection with said identified third party telecommunications apparatus, in use, on user selection of a predetermined item on said web page.

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21. A computer program for inclusion in data defining a web page for transmission to a user computer apparatus browsing the web page, operable to configure the user computer apparatus to take steps to establish, upon user selection of a predetermined item from said web page, a telephonic connection with a third party telecommunications apparatus.

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22. A computer program in accordance with claim 21 further operable to cause said user computer apparatus to disconnect a telephonic connection with apparatus hosting said web page, prior to establishing said telephonic connection with said third party.

20

23. A computer program in accordance with claim 22

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further operable to cause said user computer apparatus to monitor said telephonic connection for user cancellation thereof.

5        24. A computer program in accordance with claim 23, further operable to cause said user computer apparatus to reestablish said connection with said web page hosting apparatus on cancellation of said third party telephonic connection.

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25. A computer program comprising computer executable instructions operable to configure a computer, comprising a browser, as apparatus in accordance with any one of claims 16 to 18.

15

26. A computer program comprising computer executable instructions operable to configure a computer as apparatus in accordance with any one of claims 16 to 18.

20

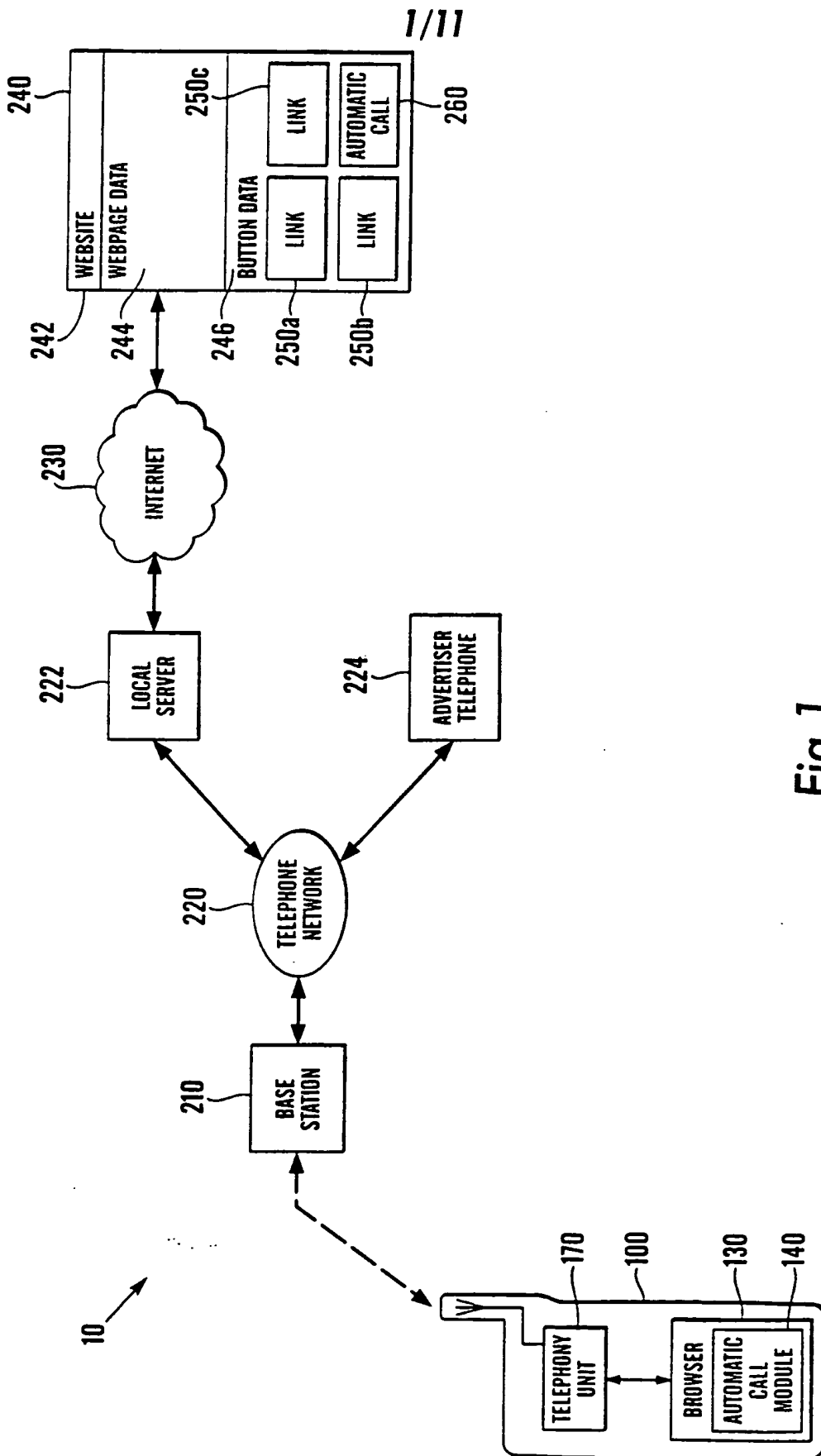
27. A carrier medium carrying a computer program in accordance with any one of claims 21 to 26.

28. A storage medium storing a computer program in accordance with any one of claims 21 to 26.

25



29. A signal conveying a computer program in accordance with any one of claims 21 to 26.



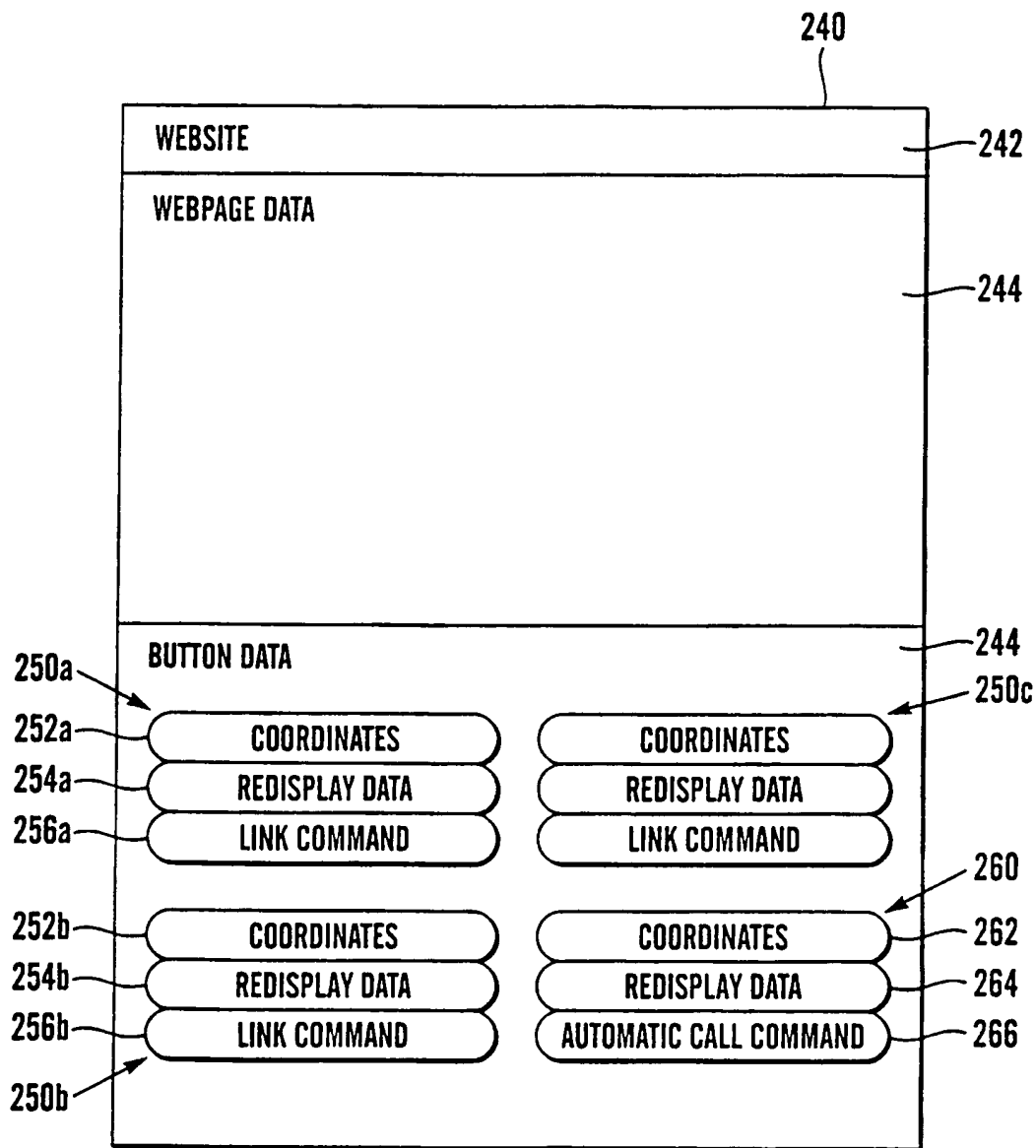


Fig.2

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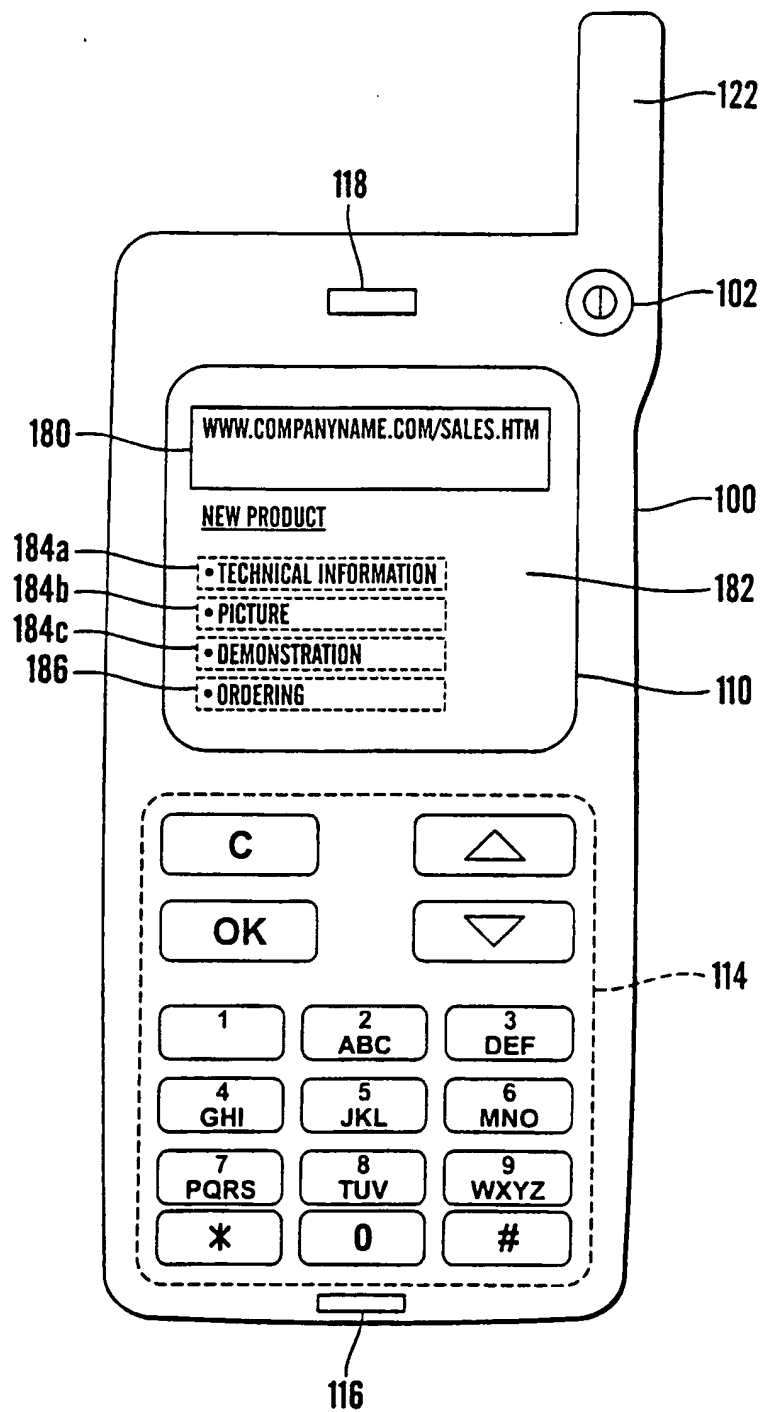


Fig.3

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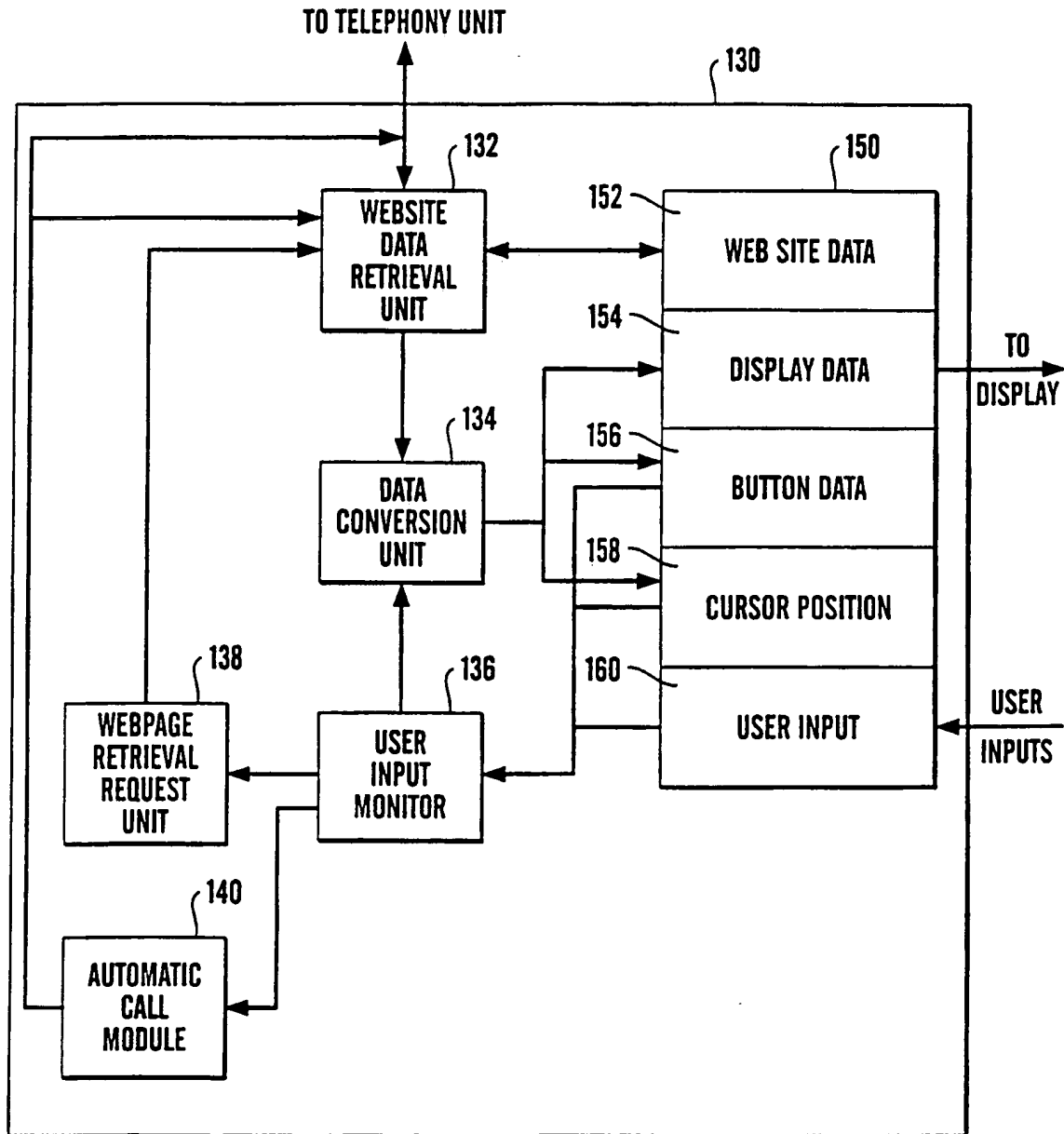


Fig.4

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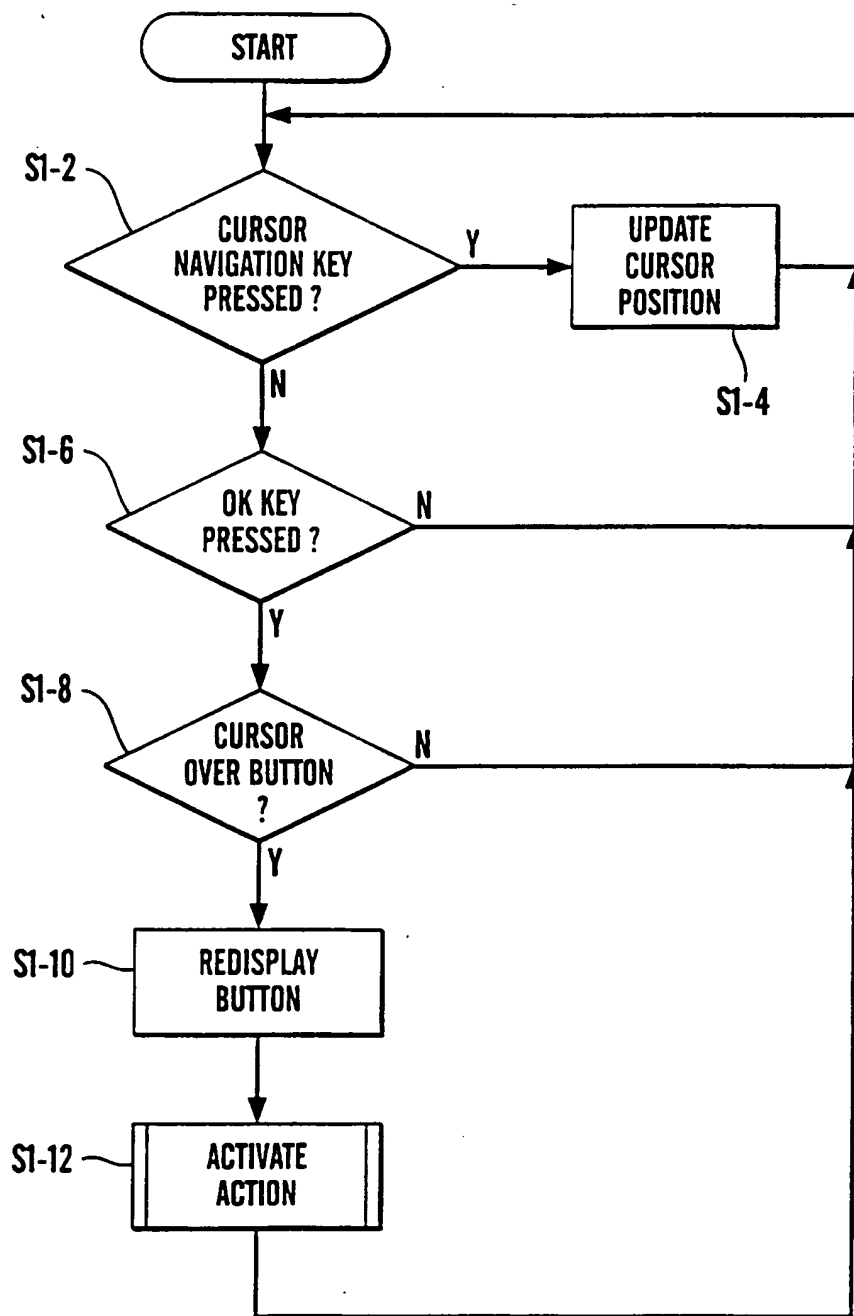


Fig.5

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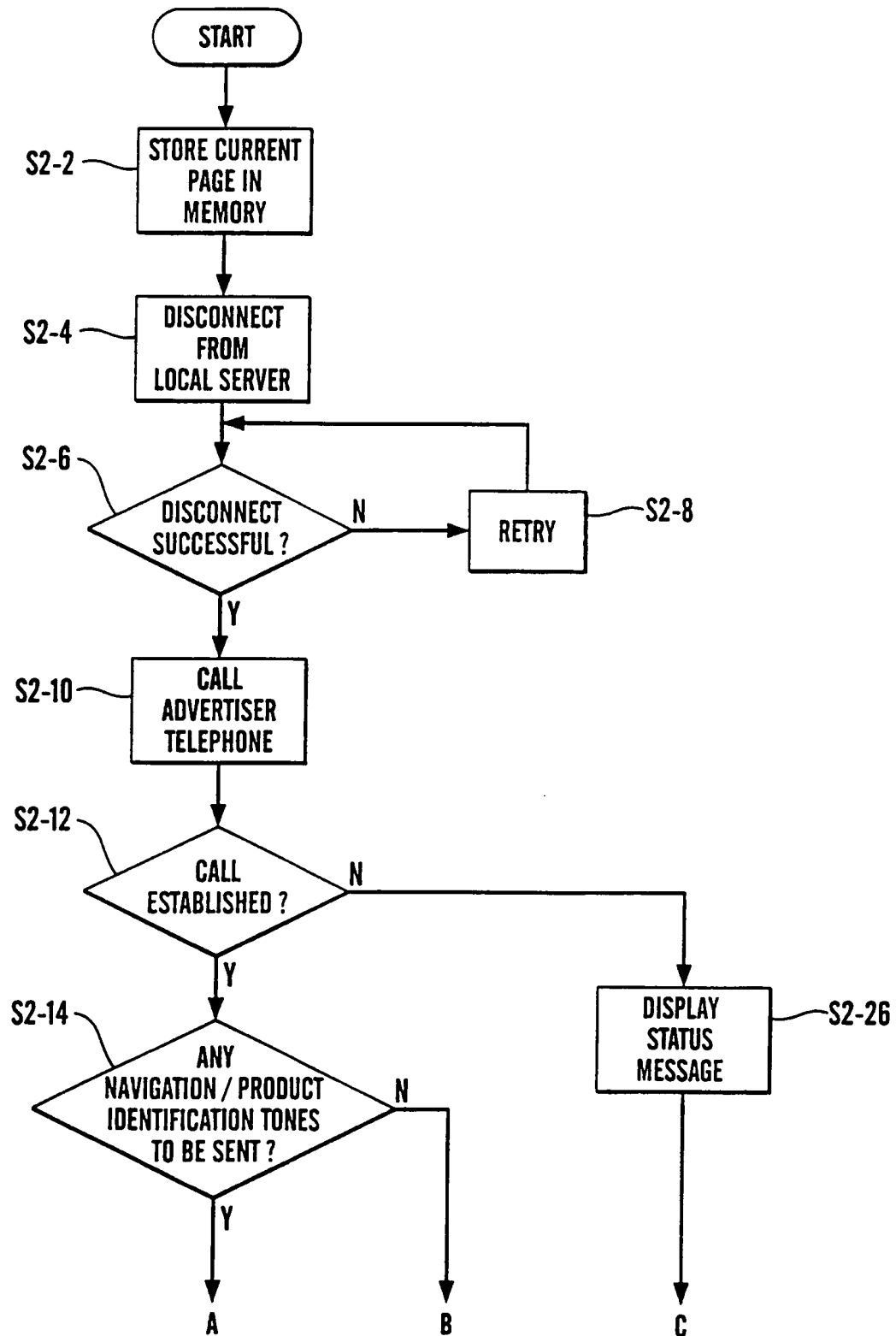


Fig.6

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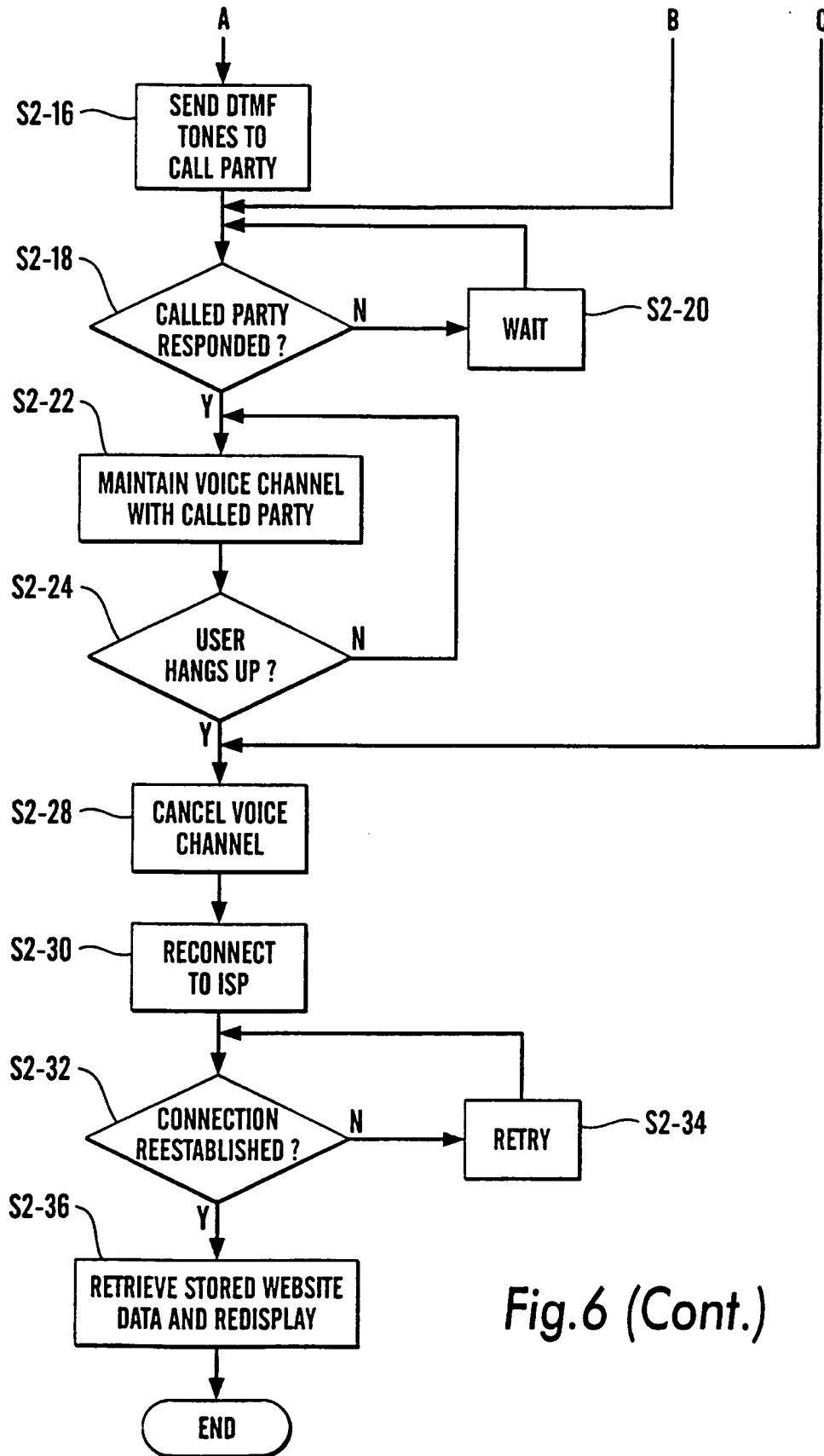


Fig.6 (Cont.)



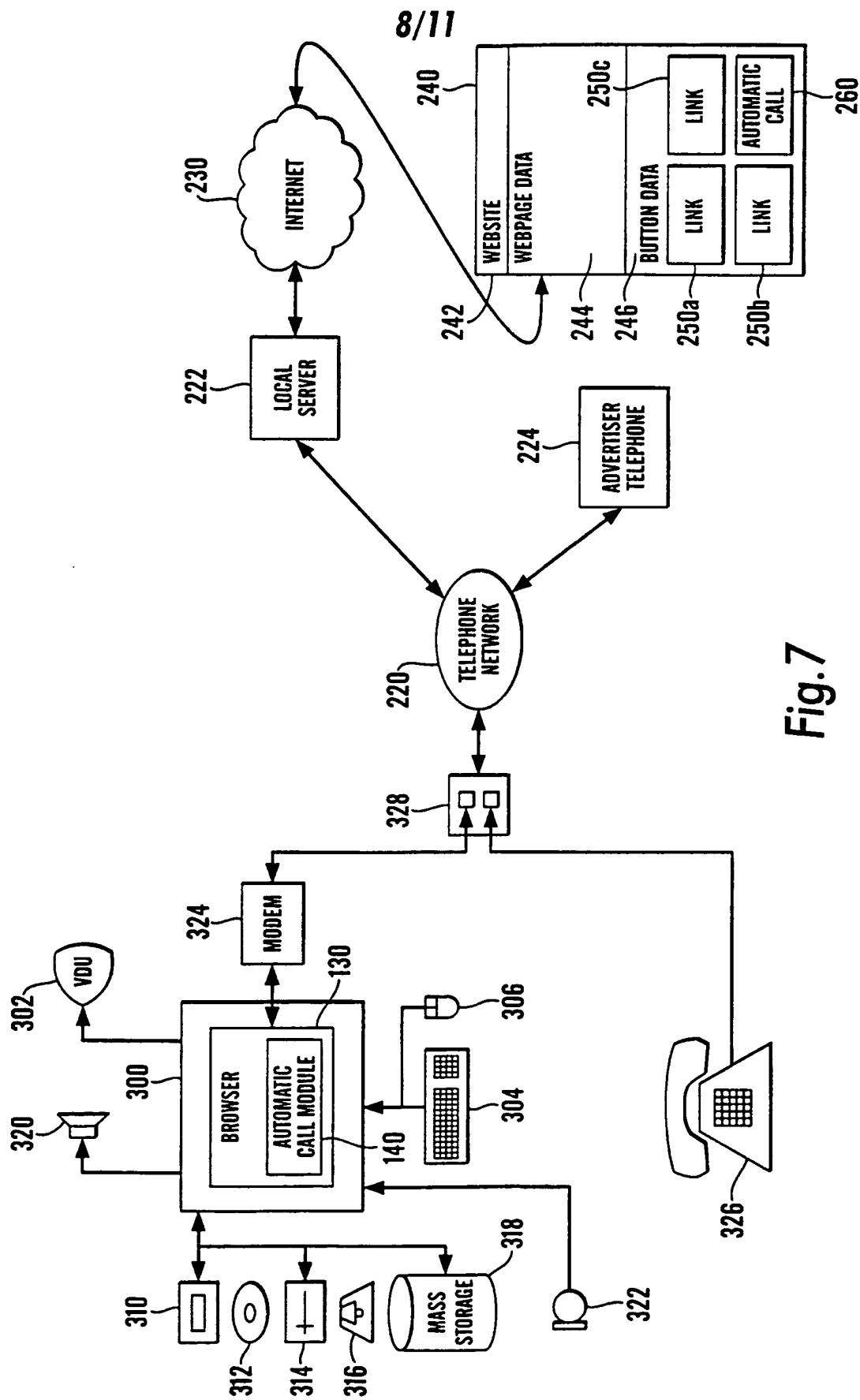


Fig. 7

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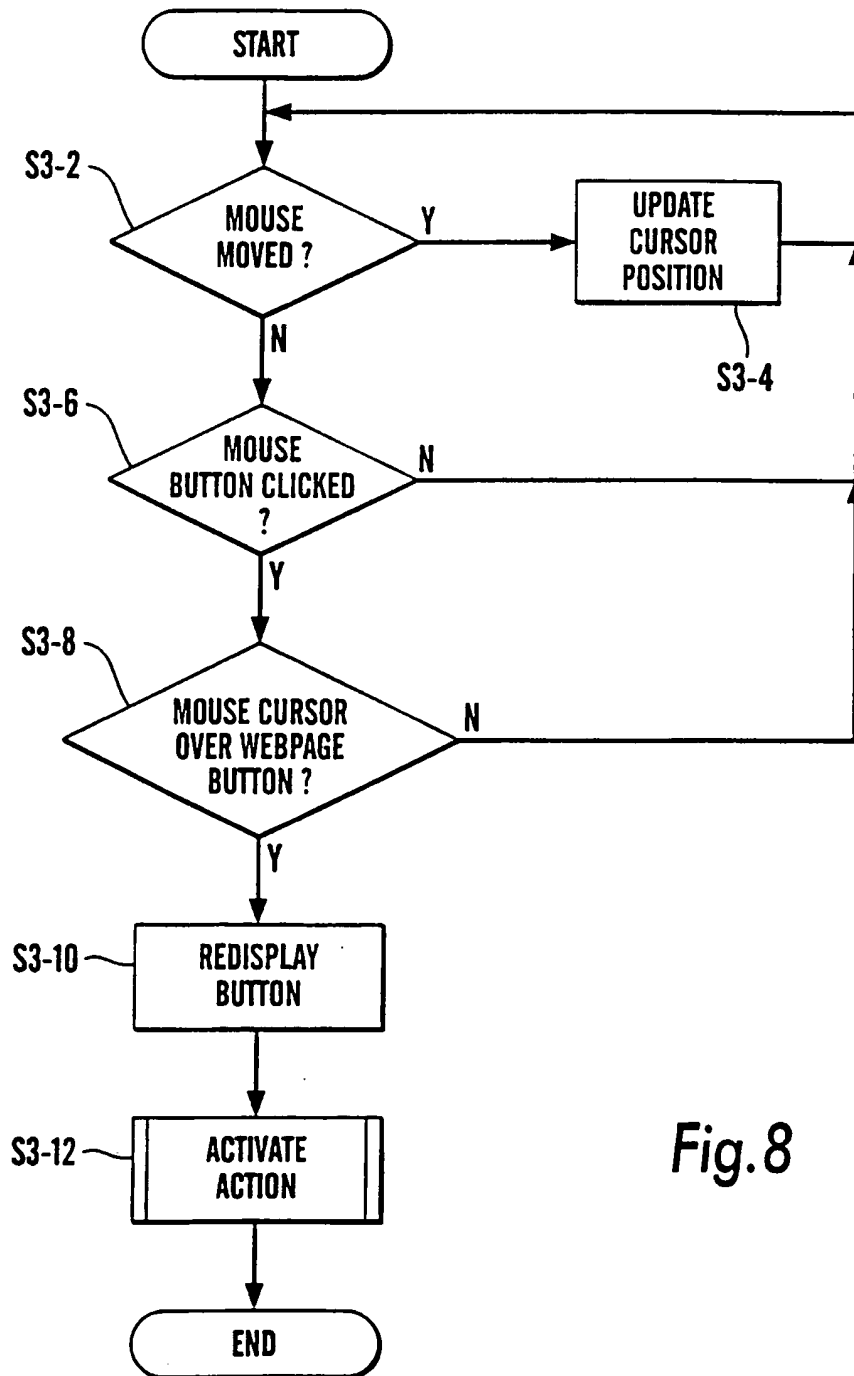
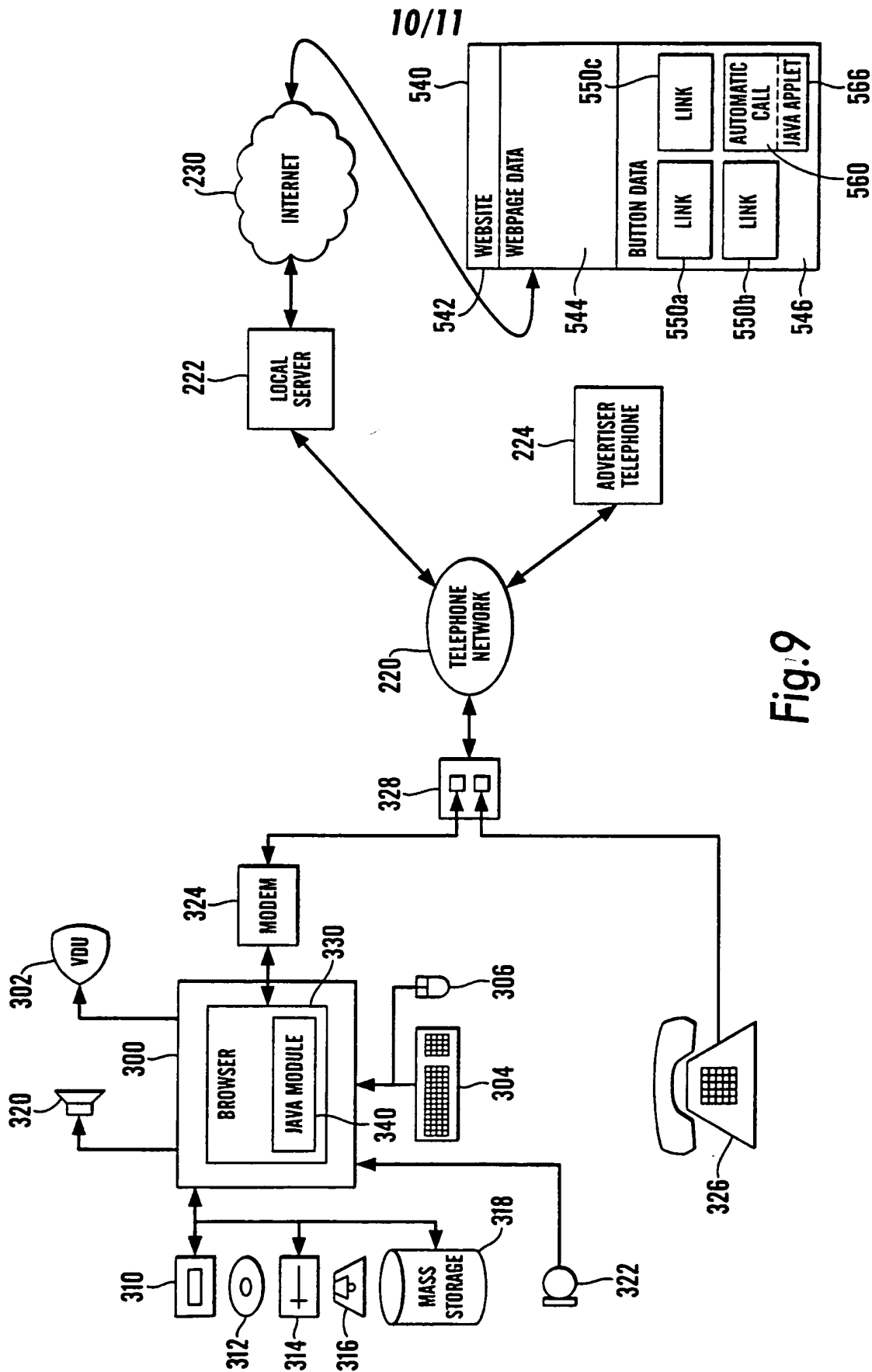


Fig. 8



**Fig.9**

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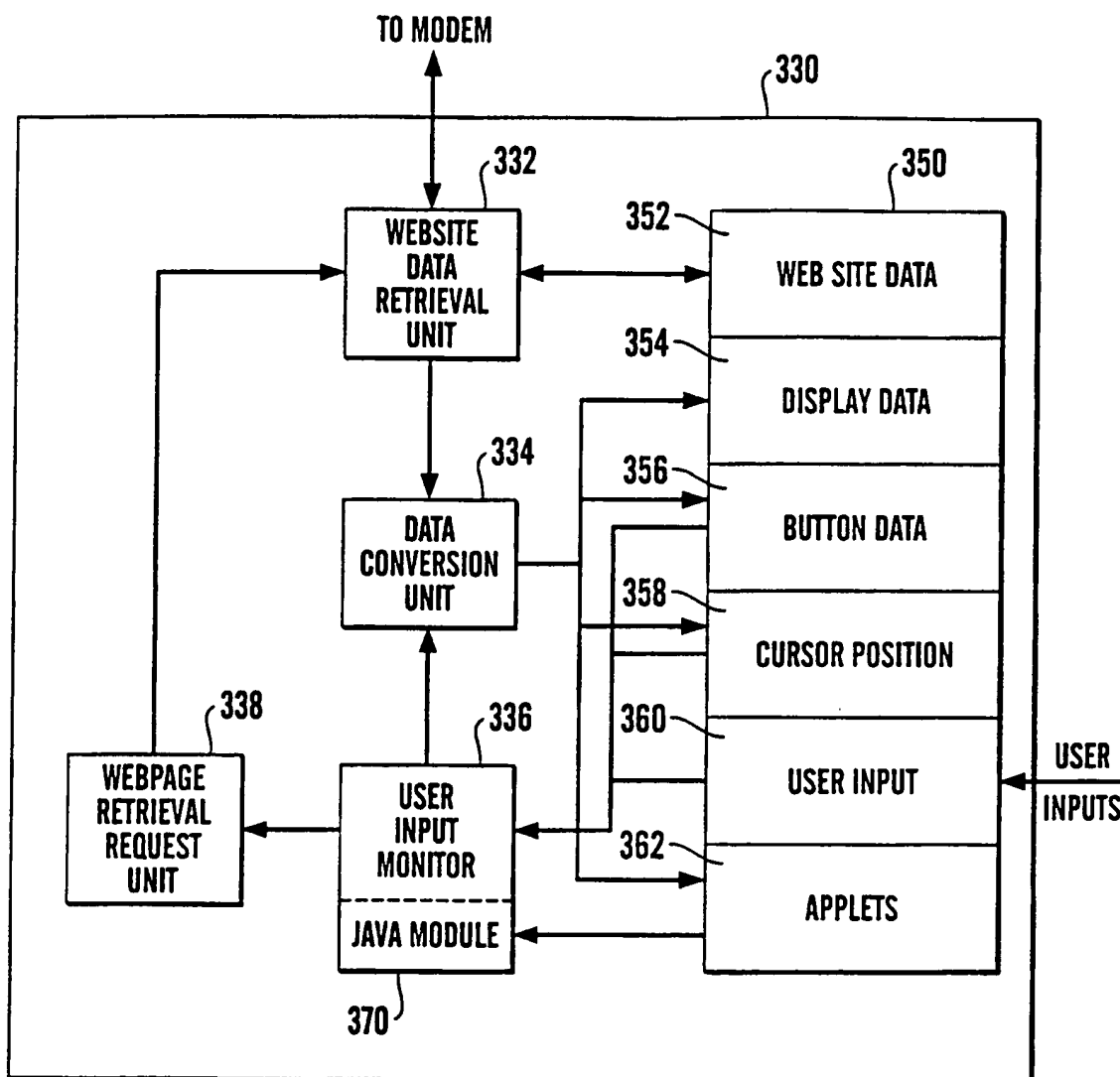


Fig. 10

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/00338

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F17/30

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06F H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 875 844 A (LUCENT TECHNOLOGIES INC) 4 November 1998 (1998-11-04)  column 6, line 50 -column 7, line 47 figure 6	1,8-17, 20,21, 25-29
X	GB 2 324 896 A (MITEL CORP) 4 November 1998 (1998-11-04)  page 13, line 29 -page 18, line 11	1-3, 8-12,15, 20,21, 25-29
A	EP 0 740 445 A (ROCKWELL INTERNATIONAL CORP) 30 October 1996 (1996-10-30) the whole document  -/-	1-29

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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\*Z\* document member of the same patent family

Date of the actual completion of the international search

19 July 2000

Date of mailing of the international search report

26/07/2000

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/00338

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>WO 99 01826 A (BUSINESS EVOLUTION INC)  14 January 1999 (1999-01-14)  abstract  page 4, line 8 -page 4, line 15  page 33, line 2 -page 33, line 14  page 48, line 2 -page 50, line 18</p>	<p>1,8-13,  15-17,20</p>
A	<p>WO 98 41004 A (BUONDONNO MICHAEL F  ;EFUSION INC (US); PIRKL KEITH A (US);  ELLIOTT) 17 September 1998 (1998-09-17)  page 2, line 15 -page 3, line 2  page 10, line 5 -page 14, line 7</p>	<p>1,8-13,  15-17,20</p>
A	<p>SCHILIT B N ET AL: "TeleWeb: Loosely  connected access to the World Wide Web"  COMPUTER NETWORKS AND ISDN  SYSTEMS,NL,NORTH HOLLAND PUBLISHING.  AMSTERDAM,  vol. 28, no. 11, 1 May 1996 (1996-05-01),  pages 1431-1444, XP004018240  ISSN: 0169-7552  page 1432, column 1, line 4 -page 1432,  column 2, line 13</p>	<p>1,15,20</p>

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Information on patent family members

International Application No

PCT/GB 00/00338

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